

Soil Science Division

Soil Survey Region 10



Bismark, North Dakota, Soil Survey Office

Soil Survey Update for Reclaimed Mine Land is Completed

Purpose

In 2006, the Farm Service Agency requested an initial soil survey of the reclaimed mine land located at the Falkirk Coal Mine in McLean County, North Dakota, near the town of Underwood. A soil survey for technical soil services (TSS) in areas in Major Land Resource Area 53, Land Resource Unit B (MLRA 53 LRU B) was needed for conservation and resource planning, and to determine producer eligibility for farm programs. In 2018, a soil survey update was requested for newly reclaimed areas now being farmed.



Active mine area of the Falkirk Coal Mine near Underwood, North Dakota.

Background Information

North Dakota contains some of the largest deposits of lignite coal within the United States and, consequently, these deposits are a major economic asset to the State. The abundant deposits are mined annually, and the coal is used for lignite-generated electricity. Over 50,000 acres of anthropogenic land exist in North Dakota. The majority is cropland that was previously mined for coal resources. Mining companies follow strict reclamation laws and procedures so that land can be reclaimed and returned back to its previous level of production before it is sold back to the producers.



Key Outcomes/Products

This soil survey update for TSS of areas in MLRA 53 LRU B was needed for conservation and resource planning and determination of producer eligibility for farm programs. The major benefit is an order 2 soil survey of newly reclaimed mine land with better defined boundaries and more precise data for all project map units. During the most recent update, data on saturated hydraulic conductivity (K_{sat}) and bulk density were collected. The future collection of *in situ* clods will provide additional data on soil properties and result in improved interpretations for soils of reclaimed mine land.

Future Goals/Conclusions

Because the Falkirk Coal Mine is fully operational, a soil survey update of the reclaimed mine lands will be needed at regular intervals. The updates will include collection of data on K_{sat} and bulk density so that scientists can better understand how soils recover after the reclamation process. A reclaimed soil no longer has the same characteristics it had before it was mined and displaced, and interpretations for its use and management may have changed. These differences affect conservation planning and land management, making an updated soil survey essential.

